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Knowledge and Awareness Level of the Diabetic Foot among Diabetic Patients in Saudi Arabia: A Cross-Sectional Study

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Abstract **Introduction:** The World Health Organization (WHO) defines diabetes mellitus (DM) as a chronic metabolic condition with multiple etiologies. Diabetes mellitus happens when there is a disturbance in the insulin hormone level that results in an increase of glucose in the blood. The insulin hormone is necessary to regulate the blood sugar level to avoid its elevation or hyperglycemia. **Objectives:** The main objective of the study is to assess the knowledge and awareness level of the diabetic foot among diabetic patients in Saudi Arabia. **Method:** The study design was a descriptive cross-sectional study conducted from July 2024 to March 2025in Saudi Arabia. The study included diabetic patients with type 1 or type 2 from both sexes in Saudi Arabia. The questionnaire assessed knowledge and awareness of diabetic foot disease, care, prior education and complications. Furthermore, medical students obtained information via a Google Form questionnaire. The data was analyzed using the Statistical Package for Social Science (SPSS). **Results:** The purpose of this study was to determine the diabetic foot complications knowledge and awareness of 385 diabetic patients in Saudi Arabia. Results: 88% 'claimed to know the link between diabetes and foot problems; however, misconceptions remained, with 55.3% believing 'stable blood sugar abolishes symptoms. Awareness levels were moderate: 56.9% were moderate and only 16.1% were high. Moreover, 39.7% demonstrated both high knowledge and positive attitudes on diabetic foot care. Though a wealth of information on these complications exists, there is room to close these gaps in knowledge to enhance education around prevention and understanding of diabetic foot issues. **Conclusion:** The findings of this study reinforce the imperative need for greater educational efforts to improve diabetic patients' knowledge and awareness of diabetic foot complications in Saudi Arabia. Gaps in understanding point to the need for tailored educational programs designed to meet the needs of diverse populations.

Key Words Knowledge, Awareness, Diabetic Foot

INTRODUCTION

The World Health Organization (WHO) defines Diabetes Mellitus (DM) as a chronic metabolic condition with multiple etiologies [1]. Diabetes mellitus happens when there is a disturbance in the insulin hormone level that results in an increase in glucose in the blood. The insulin hormone is necessary to regulate the blood sugar level to avoid its elevation or hyperglycemia [2]. One of the complications of diabetes is diabetic foot, which can lead to serious foot issues. diabetic Foot wounds are a major issue that has negative impacts on patients and healthcare systems overall [3]. According to The International Working Group on the Diabetic Foot (IWGDF) they explained the diabetic foot is defined as ulceration, infection or destruction of

tissues of the foot of an individual who has been diagnosed currently or previously with diabetes mellitus, typically associated with neuropathy as well as peripheral arterial disease in the lower extremity [4].

In 1980, 108 million persons (4.7 percent) worldwide were diagnosed with Diabetes Mellitus (DM). The number is expected to reach 366 million by 2030 [5]. A review of studies in children and adolescents published in 2019 revealed that the prevalence of diabetes mellitus over the previous decade has grown from 5 to 23.7% [6].

It also appears that 50 percent of patients with Diabetes mellitus go undiagnosed [7]. The majority of foot ulcers (60-80%) will heal but on the other hand, ten to fifteen percent will stay active and 5 to 24% will require limb amputation within 6 months [8-10]. Studies have been published on Knowledge and Awareness of Diabetic Foot Complications in Diabetic Patients. Aldawish *et al.* [11], reported that 76% of the samples reported impaired feeling in their lower extremities and 90% indicated no prior diabetic foot illness knowledge. In 2018, they found that one-third of patients reported that they had their feet inspected, at the majority of patients knew about diabetic foot care but few practiced it [10]. Not a single study on diabetes patients' knowledge and awareness of the diabetic foot has been done in all of Saudi Arabia's areas collectively, at least not in the past five years.

Objective

This article aims to assess the knowledge level and awareness of diabetic foot among diabetic patients in KSA.

METHODS

Study Design and Setting

This is a cross-sectional study conducted in Saudi Arabia. The study's population consisted of Saudi Arabian diabetes patients. Sampling was included from the different geographical locations of the kingdom. This study was done between July 2024 to March 2025.

Sample Size

The sample size was determined to determine the bare minimum of responses required for the sample to be considered representative of the entire population. The Raosoft sample size calculator was used to calculate the sample size. The sample size that was determined was 384, with an indicator percentage of 0.50, a margin of error of 5% and a Confidence Interval (CI) of 95%. This formula was used to estimate the sample size: n = P (1-P) * Zα 2/d 2 with a 95% degree of confidence. n: Z, the calculated sample size the chosen level of confidence's z-value (1-a) = 1.96. 9 P: Quota knowledge estimated: (1-0.50) = 50% or 0.50 D: 0.05 is the maximum acceptable error. The minimum sample size that could be determined was therefore n = (1.96)2 X 0.50 X 0.50/(0.05) 2 = 384.

Inclusion and Exclusion Criteria

Patients with type 1 and type 2 diabetes who were Saudi Arabian citizens, both male and female, met the inclusion requirements.

People who lived outside of Saudi Arabia and had diabetes insipidus or gestational diabetes, as well as those who were younger than 18 or older than 70, were excluded.

Method for Data Collection, Instrument and Score System

A structured questionnaire was used as a study tool. This tool was used from a relevant study conducted in Saudi Arabia [11]. The final version of the questionnaire consisted of 14 with 4 sections. Section 1: includes demographic features such as age, gender and educational qualifications. Section 2: About the level of awareness of Diabetic foot disease. Section 3: About the Knowledge and attitudes towards diabetic foot care and previous diabetic foot education. Section 4: About the Knowledge of Diabetic Foot Complications.

Scoring System

A total of 17 statements were used to assess participants' attitudes and levels of knowledge, along with demographic information. The first section of the questionnaire consisted of seven demographic items. The remaining items were distributed across three main domains: awareness of diabetic foot, knowledge and attitudes toward diabetic foot care (including prior education) and knowledge of diabetic foot complications.

Each question was scored by awarding one point for a correct answer and zero points for either an incorrect response or selecting "I don't know." The maximum possible score across all knowledge and awareness domains was 10 points. Participants' total scores were categorized according to Bloom's original cut-off points. Those scoring between 80 and 100% were considered to have a high level of knowledge, those between 60% and 79% were classified as having a moderate level and those scoring below 60% were considered to have poor knowledge.

For the awareness domain, which consisted of three items, participant scores ranged from 0 to 3. A score of 3 indicated a high level of awareness, a score of 2 was considered moderate and a score of 1 or lower reflected a low level of awareness. Similarly, the domain assessing knowledge and attitudes toward diabetic foot care, including prior education, also had a total possible score of 3. Those who scored 3 were classified as having a high level of knowledge and awareness, those scoring 2 were considered moderate and those scoring below 2 were categorized as having a low level.

In the final domain, which measured knowledge of diabetic foot complications and included four items, the maximum possible score was 4. Participants who scored more than 2 points were considered to have a high level of knowledge, those who scored exactly 2 points were classified as moderate and those with fewer than 2 points were considered to have a low level of knowledge regarding diabetic foot complications.

Pilot Test

The questionnaire was delivered to 20 people and asked them to complete it. This was done to assess the

questionnaire's simplicity and viability for the study. The pilot research's data were not included in the final study results.

Analysis and Entry Method

Data was entered on the computer using the "Microsoft Office Excel Software" program (2016) for Windows. Data was then transferred to the Statistical Package of Social Science Software (SPSS) program, version 20 (IBM SPSS Statistics for Windows, Version 20.0. Armonk, NY: IBM Corp.) to be statistically analyzed. Descriptive statistics, including frequencies, percentages, means and standard deviations, were used to summarize the data. Inferential statistics, such as Chi-square tests and independent t-tests, were employed to assess associations between knowledge, awareness and demographic variables. Statistical significance was set at $p<0.05$.

RESULTS

Table 1 displays various demographic parameters of the participants with a total number of (385). The data show a relatively balanced age balance with 24.7% of participants being 23 or younger and 25.2% are 50 years or older. This range shows that the study includes students of pretty much every life stage. There is a slight skew to the human on the male side of things, with females composing 45.5 percent of the sample and the male populous at 54.5 percent. Though there is a clear trend towards marriage, with 56.6% of respondents married, educational attainment is decidedly high with 72.2% completing at least a diploma or higher degree. The sample is geographically very weighted, toward the Western region (47.8 percent) and most respondents (96.9 percent) were Saudi nationals. Moreover, the percentage of students and employees (24.9 and 36.6, respectively) indicates a high socioeconomic proportion within the sample. Of note is the proportion of diabetes types, with Type 1 diabetes being far more common (62.9%) than Type 2 (37.1%).

As shown in Figure 1, it shows participants' knowledge of the link between diabetes mellitus without control and diabetic foot complications. Out of the 385 respondents, 311 (80.8%) correctly recognized that uncontrolled diabetes may result in such complications and this is a strong awareness among this group. However, 51 (13.2%) participants were uncertain (responded with "I don't know") and these participants potentially represented individuals who would benefit from targeted educational interventions to improve their knowledge. Moreover, 23 respondents (6.0%) said 'No,' signifying a small but important gap in understanding those risks with uncontrolled diabetes.

Table 2 presents significant data on diabetes foot disease awareness among the 385 surveyed persons. Eighty-eight percent of respondents also confirm the link between DM and the development of diabetic foot problems, which demonstrates strong knowledge about the disease's terrible repercussions. However, nearly two out of five (55.3%) also believe that those who do not have unstable blood sugars will have no symptoms of diabetic foot, indicating that people

Table 1: Sociodemographic characteristics of participants (n = 385)

Parameter		No.	Percentage
Age (Mean:38.1, STD:14.2)	23 or less	95	24.7
	24 to 39	101	26.2
	40 to 49	92	23.9
	50 or more	97	25.2
Gender	Female	175	45.5
	Male	210	54.5
Marital status	Single	147	38.2
	Married	218	56.6
	Divorced	13	3.4
	Widowed	7	1.8
Region of residence	Northern region	7	1.8
	Southern region	117	30.4
	Central region	27	7.0
	Eastern region	50	13.0
	Western region	184	47.8
Nationality	Saudi	373	96.9
	Non-Saudi	12	3.1
Educational level	College student	107	27.8
	Bachelor	171	44.4
	Diploma	53	13.8
	Master	12	3.1
	Doctorate	4	1.0
	None	38	9.9
Job status	Student	96	24.9
	Employee	141	36.6
	Unemployed	79	20.5
	Free business	13	3.4
	Retired	56	14.5
DM type	Type 1	242	62.9
	Type 2	143	37.1

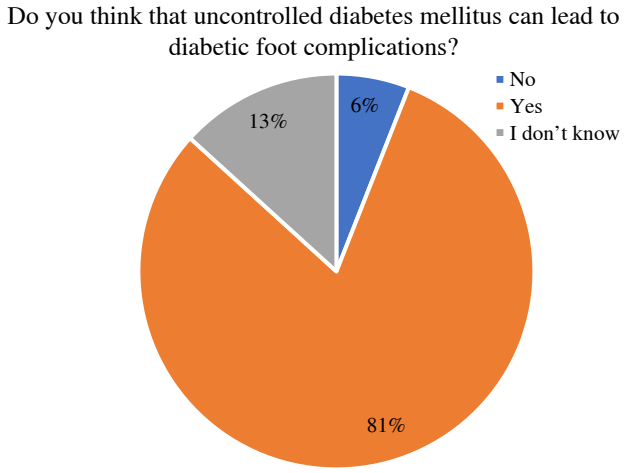

Figure 1: Illustrates that uncontrolled diabetes can lead to diabetic foot complications among participants

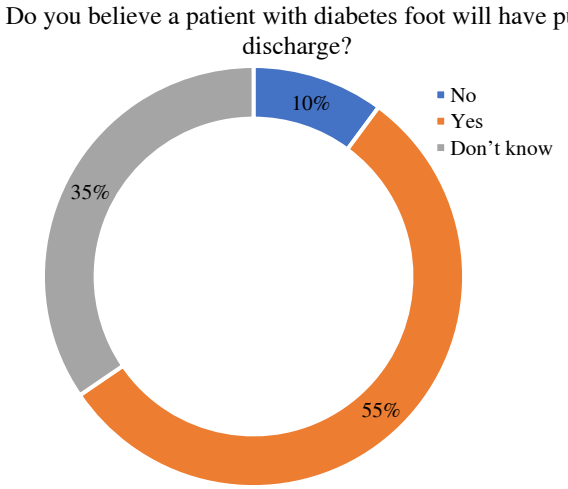

Figure 2: Illustrates whether a patient with diabetic foot will have pus discharge among participants

Table 2: Parameters related to level of awareness of diabetic foot disease (n = 385)

Parameter		No.	Percentage
Do you think that uncontrolled diabetes mellitus can lead to diabetic foot complications?	No	23	6.0
	Yes	311	80.8
	I don't know	51	13.2
Do you believe that the symptoms of diabetic foot appear in those who manage their sugar always?	No	213	55.3
	Yes	88	22.9
	I don't know	84	21.8
Do you anticipate diabetic foot symptoms showing up in those who don't control sugar directly? Or after a few decades of neglect?	No	26	6.8
	Yes	303	78.7
	I don't know	56	14.5

may not fully understand either how the disease progresses or how dangerous it can be. Additionally, 78.7% agree that individuals who do not control sugar will feel the symptoms of time, because of the long-term complications of diabetes.

As shown in Figure 2, Results of the data present participants' perception of the presence of pus discharge in diabetic foot patients. Among 385 respondents, 213 (55.3%) are convinced that a diabetic foot patient will have pus within drainage, which represents a large proportion to agree with this symptom of the disease. Nevertheless, one third, 133 (34.5%), 'Don't know' indicating uncertainty or ignorance about this clinical feature. 39 respondents (10.1%) responded 'No' that they do not consider pus discharge of diabetic foot conditions may represent a misunderstanding.

Table 3 represents the knowledge and attitudes of participants regarding diabetic foot care as well as their awareness of diabetic foot complications in patients with diabetes. It is also worth noting that almost one half of the respondents (55.3%) think that diabetic foot condition may have pus discharge and a large share of the respondents

Table 3: Participants' knowledge and attitudes about diabetic foot care, previous diabetic foot education and diabetic foot complications (n = 385)

Parameter		No.	Percentage
Do you believe a patient with diabetes foot will have pus discharge?	No	39	10.1
	Yes	213	55.3
	Don't know	133	34.5
Do you believe discoloration of the foot is associated with loss of sensation?	No	37	9.6
	Yes	269	69.9
	Don't know	79	20.5
Do you think discoloration in the foot might be caused by diabetic foot?	No	36	9.4
	Yes	258	67.0
	Don't know	91	23.6
Do you believe that elderly age increases the risk of developing diabetic feet?	No	65	16.9
	Yes	269	69.9
	Don't know	51	13.2
Do you anticipate that repetitive trauma can induce diabetic foot in patients with diabetes mellitus?	No	47	12.2
	Yes	263	68.3
	Don't know	75	19.5
Do you think smoking raises the chance of developing diabetic foot in diabetes mellitus patients?	No	56	14.5
	Yes	209	54.3
	Don't know	120	31.2
Do you think keeping the skin of the feet soft to maintain good hygiene is good for the diabetic foot?	No	66	17.1
	Yes	222	57.7
	Don't know	97	25.2

Table 4: Shows level of awareness of diabetic foot disease score results

Knowledge Level	Frequency	Percentage
High level of awareness	62	16.1
Moderate awareness	219	56.9
Low level of awareness	104	27.0
Total	385	100.0

Table 5: Shows knowledge and attitude about diabetic foot care, previous diabetic foot education score results

Knowledge Level	Frequency	Percentage
High knowledge and attitude	153	39.7
Moderate knowledge and attitude	115	29.9
Low level of knowledge and attitude	117	30.4
Total	385	100.0

Table 6: Shows knowledge about diabetic foot complications score results

Knowledge Level	Frequency	Percentage
High knowledge of complications	210	54.5
Moderate knowledge	95	24.7
Low knowledge of complications	80	20.8
Total	385	100.0

(69.9%) correctly identify the connection between foot discoloration and loss of sensation. These findings are further worrisome; 34.5% of participants did not definitively believe the two sides of the dichotomy (pus discharge) and 20.5% were uncertain about the relationship of discoloration vs. sensation loss. In addition, the data also convey a general awareness about risk factors, with 69.9% stating that elderly age is a risk factor for diabetic foot complications and with 68.3% agreeing to repetitive trauma as a general risk factor.

Table 4 illustrates how the 385 people are aware of diabetic foot disease. Of paramount importance, we note that this group is the largest (or that 56.9% of them have a moderate level of awareness). However, a low level of awareness is evident through 27.0% of respondents. Only 16.1% of the participants showed high level awareness which means that much needs to be done in public health education and the outreach efforts.

Data in Table 5 reflects the participants' attitudes and knowledge in diabetic foot care and the prior knowledge effect on attitudes towards diabetic foot care among 385 persons. In addition, there are 39.7% that possess high knowledge and a positive attitude, which implies a great part of people are educated and proactive. However, 60.3 percent fall into moderate (29.9 percent) or low (30.4 percent) categories, indicating gaps in knowledge and attitude.

Table 6 shows that most of the participants have knowledge about diabetic foot complications; 54.5% have high knowledge of the data. Therefore, it may be a promising sign of awareness of the risks and symptoms of diabetic foot complications since, according to this, more than half of the respondents have substantial knowledge. Nevertheless, only 20.8% have low knowledge and 24.7% have moderate knowledge, which accounts for almost half of the sample.

Table 7 shows that awareness of diabetic foot disease has statistically insignificant relation to

Table 7: Relation between awareness of diabetic foot disease and sociodemographic characteristics

Parameters		Awareness level		Total (N = 385)	p-value*
		High or moderate awareness	Low level of awareness		
Gender	Female	130	45	175	0.600
		46.3%	43.3%	45.5%	
	Male	151	59	210	
		53.7%	56.7%	54.5%	
Age	23 or less	62	33	95	0.108
		22.1%	31.7%	24.7%	
	24 to 39	71	30	101	
		25.3%	28.8%	26.2%	
	40 to 49	71	21	92	
		25.3%	20.2%	23.9%	
	50 or more	77	20	97	
		27.4%	19.2%	25.2%	
Marital status	Single	101	46	147	0.420
		35.9%	44.2%	38.2%	
	Married	164	54	218	
		58.4%	51.9%	56.6%	
	Divorced	11	2	13	
		3.9%	1.9%	3.4%	
	Widowed	5	2	7	
		1.8%	1.9%	1.8%	
Region of residence	Northern region	5	2	7	0.516
		1.8%	1.9%	1.8%	
	Southern region	81	36	117	
		28.8%	34.6%	30.4%	
	Central region	18	9	27	
		6.4%	8.7%	7.0%	
	Eastern region	35	15	50	
		12.5%	14.4%	13.0%	
	Western region	142	42	184	
		50.5%	40.4%	47.8%	
Nationality	Saudi	273	100	373	0.616
		97.2%	96.2%	96.9%	
	Non-Saudi	8	4	12	
		2.8%	3.8%	3.1%	
Educational level	Diploma	40	13	53	0.216
		14.2%	12.5%	13.8%	
	College student	71	36	107	
		25.3%	34.6%	27.8%	
	Bachelor's degree	133	38	171	
		47.3%	36.5%	44.4%	
	Master's degree	10	2	12	
		3.6%	1.9%	3.1%	
	Doctorate	3	1	4	
		1.1%	1.0%	1.0%	
	None	24	14	38	
		8.5%	13.5%	9.9%	
Job status	Student	67	29	96	0.472
		23.8%	27.9%	24.9%	
	Employee	105	36	141	
		37.4%	34.6%	36.6%	
	Unemployed	60	19	79	
		21.4%	18.3%	20.5%	
	Free business	7	6	13	
		2.5%	5.8%	3.4%	
	Retired	42	14	56	
		14.9%	13.5%	14.5%	
DM type	Type 1	173	69	242	0.389
		61.6%	66.3%	62.9%	
	Type 2	108	35	143	
		38.4%	33.7%	37.1%	

*p-value was considered significant if ≤0.05

gender, age, marital status, region of residence, nationality, educational level, job status and DM type.

Table 8 shows that knowledge and attitude about diabetic foot care and previous diabetic

Table 8: Knowledge and attitude level in association with sociodemographic characteristics

Parameters		Knowledge and attitude level		Total (N = 385)	p-value*
		High knowledge and attitude	Moderate or low knowledge and attitude		
Gender	Female	65	110	175	0.342
		42.5%	47.4%	45.5%	
	Male	88	122	210	
		57.5%	52.6%	54.5%	
Age	23 or less	32	63	95	0.356
		20.9%	27.2%	24.7%	
	24 to 39	45	56	101	
		29.4%	24.1%	26.2%	
	40 to 49	34	58	92	
		22.2%	25.0%	23.9%	
	50 or more	42	55	97	
		27.5%	23.7%	25.2%	
Marital status	Single	50	97	147	0.078
		32.7%	41.8%	38.2%	
	Married	98	120	218	
		64.1%	51.7%	56.6%	
	Divorced	4	9	13	
		2.6%	3.9%	3.4%	
	Widowed	1	6	7	
		0.7%	2.6%	1.8%	
Region of residence	Northern region	3	4	7	0.614
		2.0%	1.7%	1.8%	
	Southern region	44	73	117	
		28.8%	31.5%	30.4%	
	Central region	14	13	27	
		9.2%	5.6%	7.0%	
	Eastern region	17	33	50	
		11.1%	14.2%	13.0%	
	Western region	75	109	184	
		49.0%	47.0%	47.8%	
Nationality	Saudi	150	223	373	0.289
		98.0%	96.1%	96.9%	
	Non-Saudi	3	9	12	
		2.0%	3.9%	3.1%	
Educational level	Diploma	18	35	53	0.764
		11.8%	15.1%	13.8%	
	College student	39	68	107	
		25.5%	29.3%	27.8%	
	Bachelor's degree	74	97	171	
		48.4%	41.8%	44.4%	
	Master's degree	5	7	12	
		3.3%	3.0%	3.1%	
	Doctorate	1	3	4	
		0.7%	1.3%	1.0%	
	None	16	22	38	
		10.5%	9.5%	9.9%	
Job status	Student	35	61	96	0.526
		22.9%	26.3%	24.9%	
	Employee	57	84	141	
		37.3%	36.2%	36.6%	
	Unemployed	28	51	79	
		18.3%	22.0%	20.5%	
	Free business	7	6	13	
		4.6%	2.6%	3.4%	
	Retired	26	30	56	
		17.0%	12.9%	14.5%	
DM type	Type 1	91	151	242	0.265
		59.5%	65.1%	62.9%	
	Type 2	62	81	143	
		40.5%	34.9%	37.1%	

*p-value was considered significant if ≤0.05

foot education has statistically insignificant relation to gender, age, marital status, region of residence, nationality, educational level, job status and DM type.

Table 9 shows that knowledge of complications has statistically insignificant relation to gender, age, marital status, region of residence, nationality, educational level, job status and DM type.

Table 9: Knowledge of complications in association with sociodemographic characteristics

Parameters		Knowledge of complications level		Total (N = 385)	p-value*
		High knowledge of complications	Moderate or low knowledge of complications		
Gender	Female	90	85	175	0.262
		42.9%	48.6%	45.5%	
	Male	120	90	210	
		57.1%	51.4%	54.5%	
Age	23 or less	51	44	95	0.929
		24.3%	25.1%	24.7%	
	24 to 39	56	45	101	
		26.7%	25.7%	26.2%	
	40 to 49	48	44	92	
		22.9%	25.1%	23.9%	
	50 or more	55	42	97	
		26.2%	24.0%	25.2%	
Marital status	Single	78	69	147	0.425
		37.1%	39.4%	38.2%	
	Married	118	100	218	
		56.2%	57.1%	56.6%	
	Divorced	10	3	13	
		4.8%	1.7%	3.4%	
	Widowed	4	3	7	
		1.9%	1.7%	1.8%	
Region of residence	Northern region	4	3	7	0.985
		1.9%	1.7%	1.8%	
	Southern region	63	54	117	
		30.0%	30.9%	30.4%	
	Central region	14	13	27	
		6.7%	7.4%	7.0%	
	Eastern region	29	21	50	
		13.8%	12.0%	13.0%	
	Western region	100	84	184	
		47.6%	48.0%	47.8%	
Nationality	Saudi	205	168	373	0.363
		97.6%	96.0%	96.9%	
	Non-Saudi	5	7	12	
		2.4%	4.0%	3.1%	
Educational level	Diploma	20	33	53	0.102
		9.5%	18.9%	13.8%	
	College student	60	47	107	
		28.6%	26.9%	27.8%	
	Bachelor's degree	96	75	171	
		45.7%	42.9%	44.4%	
	Master's degree	9	3	12	
		4.3%	1.7%	3.1%	
	Doctorate	3	1	4	
		1.4%	0.6%	1.0%	
	None	22	16	38	
		10.5%	9.1%	9.9%	
Job status	Student	51	45	96	0.696
		24.3%	25.7%	24.9%	
	Employee	77	64	141	
		36.7%	36.6%	36.6%	
	Unemployed	48	31	79	
		22.9%	17.7%	20.5%	
	Free business	7	6	13	
		3.3%	3.4%	3.4%	
	Retired	27	29	56	
		12.9%	16.6%	14.5%	
DM type	Type 1	129	113	242	0.525
		61.4%	64.6%	62.9%	
	Type 2	81	62	143	
		38.6%	35.4%	37.1%	

*p-value was considered significant if ≤0.05

DISCUSSION

The purpose of the present study was to determine diabetic foot complication knowledge and awareness among diabetic patients in Saudi Arabia. It found that only 16.1% of participants were highly aware of diabetic foot disease. That fits with previous research identifying similar gaps in

knowledge in diabetic populations. For example, a study conducted of patients accessing a chronic outpatient department in South Africa demonstrated that patients have poor knowledge of diabetic foot disease, indicating a lack of awareness due not only to poor knowledge of diabetic foot disease but also to poor diabetic foot care education [12]. Moreover, a study in India reveals that only 51.5% knew of diabetic foot complications, implying that there is a widespread problem among different regions [13]. These results thus emphasize the necessity for planned educational interventions towards diabetic patients to foster increased knowledge about diabetic foot complications. In addition, this study also found that many of the participants (60.3%) had moderate to low knowledge and attitudes towards diabetic foot care. What makes sense with a study, conducted in Bangladesh that showed how awareness about diabetes and its complications was critical for successful diabetes management and preventing the disease long term [14]. Like in Ghana, a study of diabetic patients found that they had poor knowledge of complications, such as diabetic foot and made a case for the need for comprehensive education programmes [15]. Studies in a variety of settings have established that knowledge is associated with self-management behaviors and that improved patient awareness is associated with increased adherence to healthy practices among diabetic patients [16]. These findings of the present study attest to the critical necessity for targeted educational interventions to close the knowledge gap and cultivate positive, active health behavior in diabetic patients. Additionally, the demographic analysis of the present study showed that a significant proportion of participants were young adults, 24.7% aged 23 and younger. This is especially applicable to the fact that younger people may not have received sufficient exposure to diabetes education, which may explain their lower awareness. In another study, adolescents in Kuwait had limited knowledge of diabetes and its complications, although tailored educational efforts should be targeted to younger populations to foster early awareness, as it was found [17]. In addition, the high educational attainment of participants in this study (72.2% had completed at least a diploma) raises questions on the effectiveness of existing educational resources. This was reinforced in a study in Iraq, where higher education levels were related to better awareness of diabetes complications, suggesting that educational content must be engaging and relevant for a diverse audience [18]. The association of knowledge of diabetic foot complications and the attitude towards care is are important findings. Of the 39.7% of participants who had high knowledge+positive attitude towards diabetic foot care. This is good news in that part of the population seems well informed and is proactive with regard to his health. This is important, however, because it also justifies further work on the factors responsible for the remaining 60.3% who have moderate to low knowledge and attitudes. In Ireland, a study [19] emphasized the importance of intensive diabetes education and care management, improving outcomes and decreasing the risk of complications. This facilitates suggesting a multifaceted intervention approach, both educational and practical, geared toward increasing awareness and self-management behaviors among diabetic patients. The results of the study also found that while 54.5 percent of participants had high diabetic foot complications knowledge, a large chunk was nonetheless lacked sufficient comprehension. That corresponds to findings from a study in Sri Lanka that has demonstrated the importance of awareness of diabetes complications in achieving effective screening and management [20]. Results of the present study suggest that some patients are aware of diabetic foot risks, however, most do not know all the symptoms and prevention. In Saudi Arabia, a survey has found that diabetic patients often didn't know how important regular foot examination was and proper foot care to avoid complications [21]. By highlighting this, we draw attention to the need for the education and repetition of the key message of diabetic foot care for patients so that they can be able to explain the diabetic foot condition and how to take action and care. The limitations of the present study should be recognized. As a cross-sectional design this limits the ability to make causal inferences between knowledge and awareness levels and demographic variables. In addition, participants' data may be biased, because participants may underestimate or overestimate their levels of knowledge and awareness. Additionally, it was conducted in a definite geographical region of Saudi Arabia thereby limiting the generalizability of the findings to other people. Future research should try to examine changes in knowledge and awareness over time as well as the impact of targeted educational intervention on patient outcomes.

CONCLUSIONS

In conclusion, the findings of this study underscore the critical need for enhanced educational initiatives aimed at improving knowledge and awareness of diabetic foot complications among diabetic patients in Saudi Arabia. The observed gaps in understanding highlight the importance of tailored educational programs that address the specific needs of diverse populations. By fostering greater awareness and understanding of diabetic foot care, healthcare providers can empower patients to take proactive steps in managing their condition and ultimately reduce the incidence of diabetic foot complications.

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Conflicts of Interest

The authors declare that there are no conflicts of interest.

Ethical Approval

Informed consent was obtained from each participant after explaining the study in full and clarifying that participation was voluntary. Data collected was securely saved and used for research purposes only.

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